

Casey L. Cotant MD  
*Department of Internal Medicine*  
*Wilford Hall Medical Center*  
*Lackland Air Force Base, TX 78236, USA*

Richard A. Krasuski MD  
*Department of Cardiology*  
*Wilford Hall Medical Center*  
*Lackland Air Force Base, TX 78236, USA*

doi:10.1016/j.ajem.2006.08.001

## References

- [1] Connelly KA. Stress, myocardial infarction, and the "tako-tsubo" phenomenon. *Heart* 2004;90(9):52.
  - [2] Ueyama T. Estrogen attenuates the emotional stress-induced cardiac responses in the animal model of tako-tsubo cardiomyopathy. *J Cardiovasc Pharmacol* 2003;42(Suppl 1):S117-9.
  - [3] Kurisu S. Tako-tsubo-like left ventricular dysfunction with ST-segment elevation: a novel cardiac syndrome mimicking acute myocardial infarction. *Am Heart J* 2002;143(3):448-55.
  - [4] Nyui N. 'Tako-tsubo' transient ventricular dysfunction: a case report. *Jpn Circ J* 2000;64(9):715-9.
  - [5] Ibañez B. Tako-tsubo syndrome associated with a long course of the left anterior descending coronary artery along the apical diaphragmatic surface of the left ventricle. *Rev Esp Cardiol* 2004;57(3):209-16 [Spanish].
  - [6] Upadya S. Tako-tsubo cardiomyopathy (transient left ventricular apical ballooning)—a myocardial perfusion echocardiogram study. *Chest* 2004;67:345.
  - [7] Yasuga Y. Tako-tsubo-like transient left ventricular dysfunction and apical thrombus formation: a case report. *J Cardiol* 2004;43(2):75-80 [Japanese].
  - [8] Desmet WJ. Apical ballooning of the left ventricle: first series in white patients. *Heart* 2003;89(9):974-6.
  - [9] Gaspar J. Tako-tsubo syndrome (transient antero-apical dyskinesia): first case reported in Latin America and review of literature. *Arch Cardiol Mex* 2004;74(3):205-14 [Spanish].
  - [10] Ogura R. Specific findings of the standard 12-lead ECG in patients with 'takotsubo' cardiomyopathy: comparison with the findings of acute anterior myocardial infarction. *Circulation* 2003;57(8):687-90.
  - [11] Inoue M. Differentiation between patients with takotsubo cardiomyopathy and those with anterior acute myocardial infarction. *Circulation* 2005;69(1):89-94.
  - [12] Bybee KA. Clinical characteristics and thrombolysis in myocardial infarction frame counts in women with transient left ventricular apical ballooning syndrome. *Am J Cardiol* 2004;94:343-6.
  - [13] Akashi YJ. The clinical features of takotsubo cardiomyopathy. *QJM* 2003;96(8):563.
- reactions increased from 1.5% in 1989 to 1990 to 9.2% in 1998 to 2000 [1]. We report a unique case of anaphylaxis to topical bacitracin ointment after application to a fresh tattoo.
- A 42-year-old white man with no significant medical history was brought to the ED by his spouse. On physical examination, the patient was disoriented and unable to follow commands. The Initial vital signs were the following: temperature, 96.5; heart rate, 46; respiratory rate, 14; blood pressure, 60/40; and pulse oximetry, 85%, on room air. The patient's skin appeared flushed, with breath sounds clear to auscultation bilaterally. History obtained from the patient's spouse revealed that the patient had a fresh tattoo placed on his anterior chest wall the night before, and approximately 10 to 15 minutes before arrival in the ED, the patient had applied bacitracin to the tattoo.
- The patient received normal saline solution, Solumedrol (125 mg), Benadryl (25 mg), Pepcid (20 mg), and 0.3 mL of 1:10,000 epinephrine intravenously. Within 10 minutes, blood pressure increased to 123/67, heart rate increased to 71, and pulse oximetry was 100% on 2 L of oxygen. After 4 hours of observation in the ED and with symptoms completely resolved, the patient was discharged home in stable condition.
- Bacitracin was awarded the title of Contact Allergen of the Year 2003 by the American Contact Dermatitis Society because of its sensitizing capacity. It is the ninth most common allergen as of 2000 [2]. Although this is common knowledge in the specialty of dermatology, there is a paucity of reports in the emergency medicine literature. Case reports of allergic reactions to bacitracin have been reported after application to abrasions, chronic ulcers, clean surgical procedures, intranasal packing, and even mediastinal irrigation with bacitracin solution in the operating room [3-5]. However, we present a unique case of anaphylaxis after application of bacitracin ointment to a fresh tattoo.
- The widespread use of bacitracin has led to an increased recognition of allergic contact dermatitis, with a potential for even life-threatening anaphylaxis. Emergency medicine physicians need to be conscious of both immediate (IgE) and delayed (cell-mediated) reactions to bacitracin. Physicians and patients need to be aware of these potential serious side effects when using bacitracin on damaged skin or mucosal surfaces. With continued use of bacitracin in these circumstances, it has the potential to become the number one topical allergen in North America.

## Anaphylaxis to topical bacitracin ointment

Bacitracin is used on a daily basis for treatment of local infections and is a popular topical antibiotic for wound prophylaxis because of its low cost and presumed low toxicity [1]. Historically, bacitracin has been thought to rarely cause allergic reactions. In fact, most physicians are not aware of any side effects of the drug. However, in 2003, bacitracin was awarded "Allergen of the Year" by the North American Contact Dermatology Group because its incidence of allergic

Karen Greenberg DO

James Espinosa MD

Victor Scali DO

*Emergency Medicine Department*

*University of Medicine and*

*Dentistry of New Jersey-School of Osteopathic Medicine*

*Kennedy Health System-Stratford Division*

*Stratford, NJ 08084, USA*

*E-mail address: kjgreenb@yahoo.com*

doi:10.1016/j.ajem.2006.04.010

## References

- [1] Lio PA, Kaye ET. Topical antibacterial agents. *Infect Dis Clin North Am* 2004;18:717-33.
- [2] Aberer W. Bacitracin for lubrication: an allergen for more convenience? *J Am Acad Dermatol* 2005;52.
- [3] Saryan JA, Dammin TC, Bouras AE. Anaphylaxis to topical bacitracin zinc ointment. *Am J Emerg Med* 1998;16:512-3.
- [4] Gall R, Blakley B, Warrington R, Bell DD. Intraoperative anaphylactic shock from bacitracin nasal packing after septorhinoplasty. *Anesthesiology* 1999;91:1545.
- [5] Blas M, Briesacher KS, Lobato EB. Bacitracin irrigation: a cause of anaphylaxis in the operating room. *Anesth Analg* 2000;91:1027-8.

## Laceration of the popliteal artery and compartment syndrome resulting from stingray envenomation

A 46-year-old man was releasing a stingray from a fishing line when its tail barb punctured the patient's wader boots and entered his left medial thigh. When the paramedics arrived, the patient was hypotensive and tachycardic. He complained of severe pain surrounding the wound and numbness in his left foot. No pedal pulse could be palpated in the patient's lower extremity.

In the emergency department, the patient required several units of packed red blood cells to maintain his blood pressure. Wound exploration in the operating room revealed a lacerated left popliteal artery. No barb or other foreign body was found within the wound. The lacerated segment of the left popliteal artery was removed and repaired with a left saphenous vein bypass. The surgical incision was closed, but the area of envenomation was left to heal by secondary intention (Fig. 1). During the procedure, the patient required a 4-compartment fasciotomy for compartment syndrome, which developed distal to the site of the envenomation



**Fig. 1** The puncture wound caused by the stingray barb and, beneath it, the closed operative incision site 21 days after the injury (photo courtesy of Sarasota Memorial Hospital, Sarasota, Fla.).



**Fig. 2** One of 2 fasciotomy sites 21 days after the injury (photo courtesy of Sarasota Memorial Hospital).

(Fig. 2). The severed popliteal arterial segment and a swab from the wound were sent for culture and sensitivity but grew no organisms. The patient was discharged home from the hospital on postoperative day number 8 and was continued on intravenous and oral antibiotics. A wound vacuum was used on the envenomation site, and the patient regained full function of his lower extremity.

There are approximately 2000 stingray injuries each year in the United States [1]. However, stingrays are extremely docile and nonaggressive (Fig. 3). It is not until the stingray's wings are disturbed that its tail reflexively whips upward [1,2]. At the base of the tail is a caudal spine that contains a venom organ and an enveloping integumentary sheath [1] (Fig. 4). The spine contains sharp retroserrated teeth that can produce a puncture wound or laceration containing a film of venom, mucus, and pieces of the sheath or spine [1]. The venom has vasoconstrictive properties that may cause cyanosis, necrosis [3], poor wound healing, and

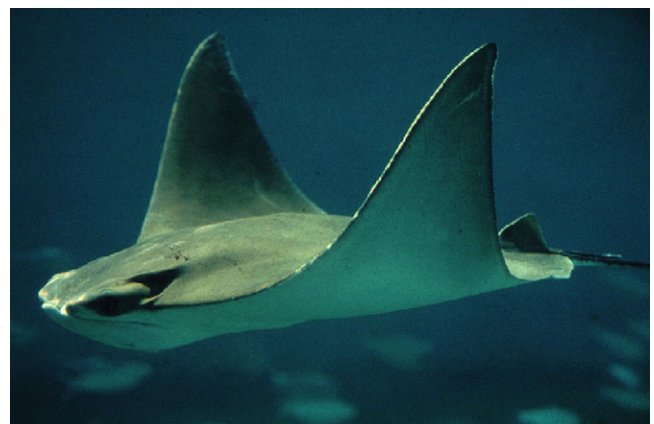


**Fig. 3** The cownose stingray (*Rhinoptera bonasus*) is commonly caught by fisherman off the West Coast of Florida (photo courtesy of Dr Carl A. Luer and Mote Marine Laboratory, Sarasota, FL).